

Application No. 10/518047
Responsive to the office action dated March 24, 2009

REMARKS

Favorable reconsideration of this application is requested in view of the following remarks.

Claims 4-6 have been canceled without prejudice. Claim 1 has been amended as supported by the specification at page 2, lines 11-20, page 7, line 15 - page 8, line 2, page 8, line 23 - page 9, line 2, and page 15-16, tables 1-2, respectively, and page 17-18, tables 3-4, respectively. See also, a catalog of Merquat 100 and 550 cationic polymers attached hereto, which shows that these polymers include dimethyl diallyl ammonium chloride as a monomer. The Merquat materials were indicated as undesirable in tables 3-4 on page 17-18 of the present specification. The preambles of claims 2 and 3 also have been amended. Claims 1-3 further have been amended editorially.

Claims 3-6 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection.

Claim 3 has been amended to clarify that the indicated amount is that of the component (d) contained in the first agent composition. Thus, the meaning of claim 3 is clear, and claims 4-6 have been canceled. Accordingly, this rejection should be withdrawn.

Claims 1-6 have been rejected under 35 U.S.C. 102(b) as being anticipated by Kubo et al. (Japanese Patent Application Publication No. 2000-264821). Applicants respectfully traverse this rejection.

Claims 1-3 of the present invention are directed to the first agent composition for a permanent wave agent or for a hair straightening agent and require that the first agent include the particular long-chain acylsulfonate type of anionic surfactant as the component (a). Kubo discloses a composition for a permanent wave and curly hair straightening agent, which contains a first and second agents (see para. [0008]) and further discloses that the first agent composition contains component (A) a reducing

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agent and component (B) a copolymer of a dimethyl diallyl ammonium chloride monomer and an acrylic acid monomer (the second "(B)" in the translation of para. [0008] is an apparent error) (*id.*), and that the second agent contains component (C) an oxidizing agent and component (D) an anionic surfactant (see *id.* and paras. [0021]-[0025]). Thus, even if the component (D) of Kubo were considered similar to the component (a) of claim 1, Kubo fails to disclose that the component (D) an anionic surfactant is included in the first agent composition as claim 1 requires.

Because Kubo includes the component (B) a copolymer of dimethyl diallyl ammonium chloride and acrylic acid, which is a cationic polymer, in the first agent, it would not be expected to include in the first agent both anionic surfactant and cationic polymer, which may form complexes on the hair and provide bristly touch to the hair when the hair is dry (see para. [0004] of the reference). In order to avoid confusion, Applicants respectfully note that claim 1 of Kubo should be translated as "...a first agent containing (A) a reducing agent and (B) a copolymer of dimethyl diallyl ammonium chloride and acrylic acid..."

Also, when a cationic polymer such as the component (B) a copolymer of a dimethyl diallyl ammonium chloride monomer and an acrylic acid monomer of Kubo, which is excluded from the first agent of claim 1, is mixed with the reducing agent, such as component (d) of claim 1 and component (A) of Kubo, rinsing out of the agent is not easy, dripping occurs while the agent is applied to hair, and bounce for hair waves is reduced (see comparative examples 1-7 in tables 3 and 4 on pages 17-18 of the specification). Thus, it also would not be expected to include the component (B) and a reducing agent together in the first agent.

In addition, Kubo fails to disclose that the component (c) anionic polymer is included in the first agent composition as claim 1 recites.

Moreover, Kubo suggests that a higher alcohol (G) may be included in the second agent composition (see para. [0011]). Thus, Kubo fails to disclose the first agent composition that includes the component (b) higher alcohol as claim 1 recites. Consequently, Kubo does not disclose the particular amount and ratio of the components (a) and (b), i.e., components (D) and (G) of Kubo, respectively, contained in the first

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agent composition such that a combined amount of the component (a) and the component (b) is 0.5 to 10 weight %, and that a molar ratio of the component (b) to the component (a) is 2 to 10 as claim 1 recites.

Further, as discussed above, the first agent composition of Kubo includes the component (B) a copolymer of a dimethyl diallyl ammonium chloride monomer and an acrylic acid monomer, which is a cationic polymer excluded from the first agent composition of claim 1.

Accordingly, claim 1 and claims 2-3, which depend from claim 1, are distinguished from claim 1, and this rejection should be withdrawn.

Claims 1-6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (Japanese Patent Application Publication No. 2000-264821). Applicants respectfully traverse this rejection.

As discussed for the 35 U.S.C. 102(b) rejection above, Kubo fails to disclose the first agent composition for a permanent wave agent or for a hair straightening agent that includes the component (a) a long-chain acylsulfonate type of anionic surfactant (which may correspond to the component (D) of Kubo), the component (b) a higher alcohol (which may correspond to the component (G) of Kubo), the component (c) an anionic polymer, the combined amount of the components (a) and (b), and the molar ratio of the component (b) to the component (a) in the first agent composition as claim 1 requires. In addition, the first agent composition of Kubo includes the component (B) a copolymer of a dimethyl diallyl ammonium chloride monomer and an acrylic acid monomer, which is a cationic polymer excluded from the first agent composition of claim 1. Those skilled in the art are not motivated to include in the first agent composition both cationic polymer such as the composition (B) and an anionic surfactant such as the component (a) since a combination of the cationic polymer and anionic surfactant may form complexes on the hair and provides bristly touch to the hair when the hair is dry (see para. [0004] of the reference), as discussed above.

In addition, when a cationic polymer such as the component (B) a copolymer of a dimethyl diallyl ammonium chloride monomer and an acrylic acid monomer of Kubo,

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which is excluded from the first agent of claim 1, is mixed with the reducing agent, such as component (d) of claim 1 and component (A) of Kubo, rinsing out of the agent is not easy, dripping occurs while the agent is applied to hair, and bounce for hair waves is reduced (see comparative examples 1-7 in tables 3 and 4 on pages 17-18 of the specification). Thus, Kubo, which discloses inclusion of the component (B) in the first agent, teaches away from the first agent of claim 1.

Even if Kubo discloses some components such as the component (D) a long-chain acylsulfonate type of anionic surfactant and component (G) higher alcohol that might be similar to the component (a) and component (b) in the first agent composition of claim 1, respectively, the components of Kubo are included in the second agent composition, not in the first composition. The first agent composition for a permanent wave agent or for a hair straightening agent and the second agent thereof have different properties in use. The first agent breaks cystine bonds of hair keratin, and the second agent reforms the cystine bonds (see page 1, lines 1-7 under "Background art"). Therefore, the first agent and second agent are not interchangeable nor can they be mixed. Kubo in no way suggests that the components (D) and (G) be included in the first agent composition while excluding the component (B).

Accordingly, claim 1 and claims 2 and 3, which depend from claim 1, are distinguished from Kubo, and this rejection should be withdrawn.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.



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DPM/my/mz

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

By: 

Douglas P. Mueller
Reg. No. 30,300

MERQUAT® Polyquaternium 7 Series

Water Soluble Polymers for Personal Care



Product Bulletin PC-PolyQ-7

KEY FEATURES

MERQUAT 550, MERQUAT 550L, MERQUAT 550PR, MERQUAT S, MERQUAT 7SPR and MERQUAT 740 are highly charged cationic copolymers developed for improved compatibility and clarity in anionic surfactant systems. MERQUAT 2200 is a dry, highly charged cationic copolymer ideal for use in anhydrous products and soluble in both glycerine and propylene glycol.

These highly substantive copolymers are recommended to improve wet and dry properties of hair care products and to enhance feel in skin care products.

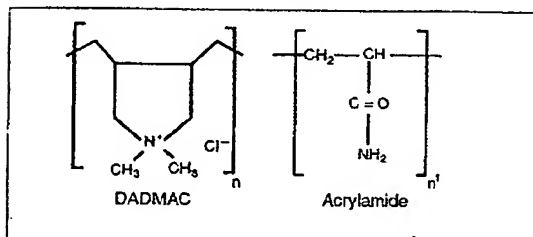
APPLICATIONS AND BENEFITS

Hair Care Products

Relaxers, Bleaches, Dyes, Shampoos, Conditioners, Styling Products, and Permanent Waves

- Contributes luster and a soft, silky feel
- Provide rich, creamy foam to shampoos
- Provides excellent slip, lubricity and snag-free wet combability without excessive buildup
- Imparts excellent dry combability
- Panel studies document excellent hair softness and wet hair feel during washing, rinsing and after rinsing
- Helps hold curls without flaking
- High solids, low viscosity product (MERQUAT 740) maximizes freight economy and flexibility in formulations
- Suggested starting concentrations (as product):
1.0% (MERQUAT 550, MERQUAT 550L, MERQUAT 550PR, MERQUAT S and MERQUAT 7SPR)
0.25% (MERQUAT 740)
0.1% (MERQUAT 2200)

CHEMICAL STRUCTURE



Skin Care Products

Moisturizing Creams, Lotions, Bath Gels, Liquid Soaps, Soap Bars, Shaving Products, and Deodorants

- Imparts a smooth, velvety feel; reduces tightness after drying skin
- Provides excellent moisturization
- Contributes lubricity which can help make skin care products easier to apply
- Liquid cleansing products acquire richer foam with improved stability
- High solids, low viscosity product (MERQUAT 740) maximizes freight economy and flexibility in formulations
- Suggested starting concentrations (as product):
1.0% (MERQUAT 550, MERQUAT 550L, MERQUAT 550PR, MERQUAT S and MERQUAT 7SPR)
0.25% (MERQUAT 740)
0.1% (MERQUAT 2200)

INCI Designation: Polyquaternium-7

TYPICAL PROPERTIES AND CHARACTERISTICS

	MERQUAT 550	MERQUAT 550L	MERQUAT 550PR	MERQUAT S	MERQUAT 7SPR	MERQUAT 740	MERQUAT 2200
Appearance	Clear, colorless viscous liquid	Clear, colorless viscous liquid	Clear, viscous liquid	Clear, colorless viscous liquid	Clear, viscous liquid	Clear, viscous liquid	Off white powder, may contain brown-black flecks
Odor	Mild, aldehydic	Mild, aldehydic	Mild, aldehydic	Mild, aldehydic	Mild, aldehydic	Mild, aldehydic	Mild, aldehydic
Color, APHA	15 max	15 max	15 max	15 max	15 max	100 max	—
Total Solids, %	8.5–9.5	8.5–9.5	8.8–9.8	8.5–9.5	8.8–9.8	41–45	92 minimum
pH	6.0–7.5	6.0–7.5	3.3–4.5	6.0–7.5	3.3–4.5	3.5–4.5	3.3–4.3 (1% solution)
pH Stability Range	3–12	3–12	3–12	3–12	3–12	3–12	3–12
Viscosity, cps @ 25°C							
Brookfield:	7,500–15,000	7,500–15,000	7,500–15,000	9,000–15,000	9,000–15,000	1,200–2,200	—
RVF Spindle	#4 @ 10 rpm	#4 @ 10 rpm	#4 @ 10 rpm	#4 @ 10 rpm	#4 @ 10 rpm	#3 @ 10 rpm	
Molecular Weight (GPC, MALLS)	1.6×10^6	1.6×10^6	1.6×10^6	2.6×10^6	2.6×10^6	1.2×10^5	9×10^5
Recommended Use Levels % (as product)	1.0–4.0	1.0–4.0	1.0–4.0	1.0–4.0	1.0–4.0	0.25–1.0	0.1–1.0
Particle Size	—	—	—	—	—	—	98% less than 16 mesh
% Moisture	—	—	—	—	—	—	Less than 8
Residual Acrylamide	≤ 10 ppm	≤ 1 ppm	≤ 1 ppm	≤ 1 ppm	≤ 1 ppm	≤ 10 ppm	≤ 100 ppm

Toxicological Summary — For a summary of toxicological information, refer to the specific MERQUAT Water Soluble Conditioning Polymer Material Safety Data Sheet.

Anhydrous/Low Moisture Formulations

Bar Soaps, Barrier Creams, Antiperspirants, and Deodorants (MERQUAT 2200)

- Leaves a smooth, silky feel
- Excellent moisture retention
- Reduces tightness after drying skin
- Synergistic when used with anti-perspirant and deodorant actives
- Suggested starting concentration: 1.0% (bar soaps and barrier creams), 0.3% (other products)

Suggested concentrations serve only as a starting point when formulating. Optimum performance will vary according to formulation type and desired result.

DESCRIPTION

MERQUAT 550, MERQUAT 550L, MERQUAT 550PR, MERQUAT S and MERQUAT 7SPR conditioning polymers are aqueous solutions of the highly charged cationic copolymer of 30 mole % diallyl dimethyl ammonium chloride and 70 mole % acrylamide. MERQUAT 550, MERQUAT 550L and MERQUAT S contain methyl paraben and propyl paraben as preservatives. MERQUAT 550PR and MERQUAT 7SPR contain sodium benzoate as a preservative.

MERQUAT 740 is a high solids aqueous solution of the highly charged cationic copolymer of 24 mole % diallyl dimethyl ammonium chloride and 76 mole % acrylamide. **MERQUAT 740** contains 0.3% sodium benzoate as a preservative.

MERQUAT 2200 is a dry, highly charged cationic copolymer of 30 mole % diallyl dimethyl ammonium chloride and 70 mole % acrylamide. **MERQUAT 2200** does not contain preservatives.

FORMULATION TIPS

For best clarity when formulating liquid cleansing products, add the cationic liquid **MERQUAT** polymer into an anionic surfactant or surfactant blend.

Order of addition of formulation ingredients can be adjusted to help achieve clarity. It is often advantageous to add the liquid **MERQUAT** polymer near the end of the manufacturing process.

It is recommended to add **MERQUAT 2200** by slowly sifting the powder into a vortex in the water at the beginning of the manufacturing process. Adding surfactant to the water/polymer mixture will shorten the hydration time. **MERQUAT 2200** water soluble polymer is also soluble in glycerine and propylene glycol.

PACKAGING AND STORAGE

MERQUAT 550, **MERQUAT 550L**, **MERQUAT 550PR**, **MERQUAT S**, **MERQUAT 7SPR** and **MERQUAT 740** water soluble conditioning polymers are available in the following packages: polyethylene pails, polyethylene drums, liquid bins and in bulk.

MERQUAT 2200 water soluble conditioning polymer is available in fiber drums.

REMARKS

If you need sample formulations, assistance or other information, please call our Naperville, IL USA office at 1-630-305-1000 or visit our website at www.nalco.com/cosmetics.

MERQUAT®

Polyquaternium 6 Series

Water Soluble Polymers for Personal Care



Product Bulletin PC-PolyQ-6

KEY FEATURES

MERQUAT 100 and MERQUAT 106 are highly charged cationic homopolymers for use in hair and skin care applications.

APPLICATIONS AND BENEFITS

Hair Care Products

Relaxers, Bleaches, Dyes, Shampoos, Conditioners, Styling Products, and Permanent Waves

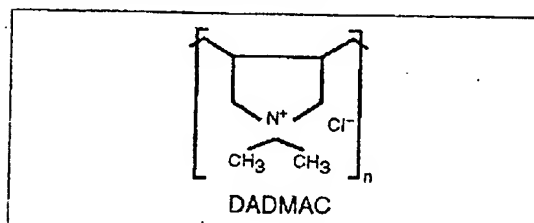
- Contributes luster and a soft, silky feel
- Provides excellent slip, lubricity and snag-free wet combability
- Imparts excellent dry combability
- Reduces static
- Suggested starting concentration: 0.75% as product (shampoo and conditioner), 3.0% as product (ethnic and reactive products)

Skin Care Products

Moisturizing Creams, Lotions, Bath Gels, Liquid Soaps, Soap Bars, Shaving Products, Antiperspirants, and Deodorants

- Imparts a smooth, velvety feel; reduces tightness after drying skin
- Provides excellent moisturization
- Contributes lubricity which can help make skin care products easier to apply
- Liquid cleansing products acquire richer foam with improved stability

CHEMICAL STRUCTURE



- Enhances spreadability of creams and lotions
- Suggested starting concentration: 1.0% as product

Suggested concentrations serve only as a starting point when formulating. Optimum performance will vary according to formulation type and desired result.

DESCRIPTION

MERQUAT 100 and MERQUAT 106 conditioning polymers are aqueous solutions of the highly charged cationic homopolymer of diallyl dimethyl ammonium chloride. They contain no added preservatives.

PACKAGING AND STORAGE

MERQUAT 100 water soluble conditioning polymer is available in the following packages:
polyethylene pails — 20 kg (44 lb) net weight;
polyethylene drums — 204 kg (450 lb) net weight;
liquibins — 1,021 kg (2,250 lb) net weight and in bulk.

MERQUAT 106 water soluble conditioning polymer is available in the following packages:
polyethylene pails — 20 kg (44 lb) net weight;
polyethylene drums — 221 kg (487 lb) net weight.

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INCI Designation: Polyquaternium-6

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TYPICAL PROPERTIES AND CHARACTERISTICS

	MERQUAT 100	MERQUAT 106
Appearance	Clear, light yellow viscous liquid	Light yellow liquid
Odor	Mild, aldehydic	Mild, aldehydic
Color, APHA	125 max	250 max
Total Solids, %	39 – 44	30 – 36
pH	5.5 – 7.0	3.5 – 5.0
pH Stability Range	1 – 14	1 – 14
Viscosity, cp @ 25°C Brookfield: LVF Spindle	8,000 – 12,000 #3 @ 6 rpm	20 – 65 #1 @ 60 rpm
Molecular Weight (GPC, MALLS)	1.5×10^5	1.5×10^4
Recommended Starting Use Levels (as product)	0.75%	0.75%

Toxicological Summary — For a summary of toxicological information, refer to the specific MERQUAT Water Soluble Polymer Material Safety Data Sheet.

FORMULATION TIPS

In liquid cleansing products, best results are achieved by first diluting the MERQUAT polymer in a portion of the formulation water and then adding this to the surfactants.

Due to the high cationic charge of MERQUAT 100 and MERQUAT 106 formulators may encounter difficulties in obtaining clear liquid cleansing products in traditional anionic based surfactant systems. It is recommended to use an amphoteric or cationic such as disodium cocoamphodiacetate or cocamidopropyl betaine as the primary surfactant, then use minimal amounts of anionic surfactants to boost the foam level in the product.

REMARKS

If you need sample formulations, assistance or other information, please call our Naperville, IL USA office at 1-630-305-1000 or visit our website at www.nalco.com/cosmetics.

Nalco Company 1601 West Diehl Road • Naperville, Illinois 60563-1198

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